

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

HUMAN SPACE FLIGHT

FISCAL YEAR 2003 ESTIMATES (IN MILLIONS OF REAL YEAR DOLLARS)

SUMMARY OF RESOURCE REQUIREMENTS

	FY 2001 OP PLAN REVISED	FY 2002 INITIAL OP PLAN	FY 2003 PRES BUDGET
	<i>(Millions of Dollars)</i>		
International Space Station *	2,127.8	1,721.7	1,492.1
Space Shuttle	3,118.8	3,272.8	3,208.0
Payload and ELV Support	90.0	91.3	87.5
Space Communications and Data Systems**	521.7	482.2	117.5
Investments and Support***	1,247.8	1,214.5	1,178.2
Safety, Mission Assurance and Engineering****	47.4	47.6	47.6
Total	7,153.5	6,830.1	6,130.9
<u>Distribution of Program Amount by Installation</u>			
Johnson Space Center	4,086.6	3,933.7	3,372.6
Kennedy Space Center	669.1	797.9	664.5
Marshall Space Flight Center	1,602.8	1,349.4	1,239.5
Stennis Space Center	82.9	89.6	91.1
Ames Research Center	81.1	14.3	7.2
Dryden Flight Research Center	36.8	22.0	10.1
Glenn Research Center	125.3	42.3	46.5
Langley Research Center	19.3	13.8	14.3
Goddard Space Flight Center	183.9	198.1	68.9
Jet Propulsion Laboratory	147.7	185.7	15.3
Headquarters	88.0	183.3	600.9
Total	7,153.5	6,830.1	6,130.9

** - In FY 2002 and outyears, funding for International Space Station Research is included in the Science, Aeronautics, and Technology Appropriation (as part of Biological and Physical Research)*

*** In FY 2001, Space Communications and Data Systems was included in the Science, Aeronautics and Technology Appropriation (as Space Operations). In FY 2003, budget reflects the transfer of management of several major networks (Deep Space Network, Ground Network, Western Aeronautical Test Range) to other enterprises.*

**** In FY 2002, Investments and Support includes other-than-direct costs for Human Space Flight which were previously included in the Mission Support appropriation*

*****In FY 2001, SMA&E were included in the Mission Support Appropriation*

STRATEGIC PLAN LINKAGE TO THIS BUDGET

As America enters a new millennium, people the world over are reflecting on the accomplishments of the past and speculating about opportunities of the future. Some of the most inspiring and important accomplishments of the past four decades have resulted from the space program. Events such as the planet-wide impact of the Apollo landings on the moon and images of the Earth; discoveries such as the astonishing Hubble Space Telescope (HST) photos of solar system formation; achievements such as the sending of the first human-built spacecraft—Pioneer and Voyager spacecraft—beyond our solar system; and new capabilities such as communications and weather satellites. Space has touched the lives of many hundreds of millions worldwide.

The mission of HEDS is to expand the frontiers of space and knowledge by exploring, using, and enabling the development of space for human enterprise. To achieve this mission, NASA's Human Exploration and Development of Space (HEDS) Enterprise is pursuing four strategic goals:

- Explore the space frontier
- Enable humans to live and work permanently in space
- Enable the commercial development of space, and
- Share the experience and benefits of discovery

HEDS begins with the foundation of the Space Shuttle and the International Space Station, now fully functional and supporting scientific research while continuing construction in Earth orbit, and look to the future by fostering technology development and commercialization in space.

HEDS also aspires to make possible U.S. leadership of international efforts to extend permanently human presence beyond the bounds of Earth, involving both machines and humans as partners in innovative approaches to exploration. HEDS engages the private sector in the commercial development of space in order to enable the continuation of current space business and the creation of new wealth and new jobs for the U.S. economy.

Accomplishment of these goals will enable historic improvements in our understanding of nature, in human accomplishment, and in the quality of life. The Human Exploration and Development of Space Strategic Plan is a first step. The performance plan shows how we plan to measure our success.

Goal 1 - Explore the Space Frontier

There are certain ideas that many believe to be inherent in the human psyche and integral to American culture: ambition for progress, curiosity about the unknown, the need to pose profound questions and to answer them, the concept of new frontiers that—once achieved—promise a better quality of life for all peoples. Space is such a frontier. Earth orbit, the Moon, near-Earth space, Mars and the asteroids, eventually the moons of the giant planets of the outer solar system, and someday more distant worlds—these are collectively the endless, ever-expanding frontier of the night sky under which the human species evolved and toward which the human spirit is inevitably drawn. It is a fundamental goal of NASA to expand the space frontier progressively through human exploration, utilization of space for research, and commercial development.

Strategic Objectives

- Invest in the development of high-leverage technologies to enable safe, effective and affordable human/robotic exploration.
- Conduct engineering research on the International Space Station to enable exploration beyond Earth orbit.
- Enable human exploration through collaborative robotic missions. (funded in Science, Aeronautics, and Technology appropriation)
- Define innovative human exploration mission approaches.
- Develop exploration/commercial capabilities through private sector and international partnerships.

Goal 2 - Enable Humans to Live and Work Permanently in Space

Advances in technology notwithstanding, the human element continues to be the major factor in the success or failure of most terrestrial enterprises. In many cases, innovative technologies are most effective when used to leverage or enhance the productivity of humans. Moreover, the human element is a quintessential component in the public's continuing interest in, and support for the space program. Human presence will be an essential factor in successfully opening the space frontier and expanding knowledge through research in space. As our activities in space grow, so too must human involvement. In this way, we open the door to an array of benefits, tangible and intangible, for the people of the United States and the world. It is, therefore, a goal of NASA to enable and establish permanent and productive human presence in space, to advance America's aspirations and opportunities in space through new technologies and new ways of doing business.

Strategic Objectives

- Provide and make use of safe, affordable, and improved access to space.
- Operate the International Space Station to advance science, exploration, engineering, and commerce.
- Ensure the health, safety, and performance of humans living and working in space.
- Meet sustained space operations needs while reducing costs.

Goal 3 - Enable the Commercial Development of Space

Commerce is essential to human society; free market transactions are the foundation of the dramatic progress humankind has made during the past several centuries. Wherever humans go and wherever they live, there too is commerce. Moreover, the free market is an effective mechanism for delivering tangible benefits from space broadly to the American people.

If humanity is to explore and develop space, to better exploit the space environment for profound scientific discoveries, and someday to settle the space frontier, it may be through the continuing expansion of the private sector—of individuals and of industry—into space. As the space frontier opens, it is important must therefore seek to expand the free market into space.

It is a goal of NASA to enable the commercial development of space.

Strategic Objectives

- Improve the accessibility of space to meet the needs of commercial research and development.
- Foster commercial endeavors with the International Space Station and other assets.
- Develop new capabilities for human space flight and commercial applications through partnerships with the private sector.

Goal 4 - Share the Experience and Benefits of Discovery

Americans—of all backgrounds—should have the opportunity to share in the experience and benefits of space exploration and development. During the past four decades, ambitious human space flight missions have inspired generations of young people to undertake careers in science, mathematics, and engineering— benefiting both themselves and society. The space program can enrich society by directly enhancing the quality of education. Terrestrial applications of technologies developed for space have saved many lives, made possible medical breakthroughs, created countless jobs, and yielded diverse other tangible benefits for Americans. The further commercial development of space will yield still more jobs, technologies, and capabilities to benefit people the world over in their everyday lives. A goal of NASA is therefore to share the experience, the excitement of discovery, and the benefits of human space flight with all.

Strategic Objectives

- Engage and involve the public in the excitement and the benefits of and in setting the goals for the exploration and development of space.
- Provide significantly more value to significantly more people through exploration and space development efforts.
- Advance the scientific, technological, and academic achievement of the Nation by sharing our knowledge, capabilities, and assets.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

HUMAN SPACE FLIGHT (INCLUDING TRANSFER OF FUNDS)

For necessary expenses, not otherwise provided for, in the conduct and support of human space flight research and development activities, including research, development, operations, support and services; maintenance; construction of facilities including repair, rehabilitation, revitalization and modification of facilities, construction of new facilities and additions to existing facilities, facility planning and design, environmental compliance and restoration, and acquisition or condemnation of real property, as authorized by law; space flight, spacecraft control and communications activities including operations, production, and services; program management; personnel and related costs, including uniforms or allowances therefore, as authorized by 5 U.S.C. §§ 5901- 5902; travel expenses; purchase and hire of passenger motor vehicles; not to exceed ~~[\$20,000]~~ \$24,000 for official reception and representation expenses; and purchase, lease, charter, maintenance and operation of mission and administrative aircraft, ~~[\$6,912,400,000]~~ \$6,172,900,000 to remain available until September 30, ~~[2003]~~ 2004, of which amounts as determined by the Administrator for salaries and benefits; training, travel and awards; facility and related costs; information technology services; science, engineering, fabricating and testing services; and other administrative services may be transferred to the "Science, aeronautics and technology" in accordance with section 312(b) of the National Aeronautics and Space Act of 1958, as amended by Public Law 106-377. *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2002; additional authorizing legislation required.)*

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

HUMAN SPACE FLIGHT

FISCAL YEAR 2003 REIMBURSABLE ESTIMATES (IN MILLIONS OF REAL YEAR DOLLARS)

	FY 2001 OPLAN REVISED	FY 2002 INITIAL OP PLAN	FY 2003 PRES BUDGET
	<i>(Millions of Dollars)</i>		
International Space Station	--	0.1	0.1
Space Shuttle	9.4	4.4	4.4
Payload and ELV Support	9.2	1.3	1.1
Space Communications and Data Systems*	--	49.6	46.5
Investments and Support**	157.6	191.8	97.2****
Safety, Mission Assurance and Engineering***	--	0.3	0.3
Total	176.2	247.5	149.6

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* In FY 2001, Space Communications and Data Systems was included in the Science, Aeronautics and Technology Appropriation (as Space Operations

** In FY 2002, Investments and Support includes other-than-direct costs for Human Space Flight which were previously included in the Mission Support appropriation

*** In FY 2001, SMA&E were included in the Mission Support Appropriation

**** In FY 2003, reimbursable estimates for Investments and Support are understated by \$92.6M due to omission of estimates for reimbursables from the 45th Space Wing at Patrick Air Force Base and Cape Canaveral Air Force Station.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 2003 ESTIMATES

DISTRIBUTION OF HUMAN SPACE FLIGHT BY INSTALLATION (Millions of Dollars)

Program	Total	Johnson Space Center	Kennedy Space Center	Marshall Space Flight Center	Stennis Space Center	Ames Research Center	Dryden Flight Research Center	Langley Research Center	Glenn Research Center	Goddard Space Flight Center	Jet Propulsion Lab	Headquarters
Space Station	2001	2,127.8	1,549.5	113.2	288.9		61.5	6.2	4.1	71.0	13.0	6.6
	2002	1,721.7	1,500.5	97.0	75.1		0.2	1.0	0.1	3.8	2.5	41.5
	2003	1,492.1	1,162.9	95.3	61.9		0.2		0.1	4.2		167.5
Space Shuttle	2001	3,118.8	1,847.8	174.8	1,035.2	39.8	2.0	4.8	0.3		10.9	3.2
	2002	3,272.8	1,989.8	209.1	1,002.6	44.3	2.0	4.6			8.0	12.4
	2003	3,208.0	1,778.2	164.7	887.1	45.4		5.5		3.0		324.1
Payload and ELV Support	2001	90.0	1.4	73.6	3.9					11.1		
	2002	91.3	1.3	76.4	2.7					10.9		
	2003	87.5	1.3	74.3	1.8					10.1		
Investments and Support	2001	1,247.8	433.0	299.9	262.2	43.1	16.3	12.9	9.1	43.2	53.4	72.1
	2002	1,214.5	408.1	340.4	193.3	45.1	11.5	3.9	8.2	32.4	53.4	115.5
	2003	1,178.2	422.6	320.6	195.5	45.4	6.0	3.6	8.4	36.8	29.0	109.9
Space Communications and Data Systems	2001	521.7	247.6	37.1	9.5			12.8		8.6	79.9	2.3
	2002	482.2	26.9	74.2	72.8			12.4		3.5	111.0	6.2
	2003	117.5	21.0	8.9	57.1					3.4	14.3	5.3
Safety, Mission Assurance and Engineering	2001	47.4	7.2	0.4	3.2	0.1	1.2	0.2	5.9	2.5	15.6	3.9
	2002	47.6	7.2	0.7	3.1	0.2	0.6	0.2	5.5	2.5	12.2	7.7
	2003	47.6	8.7	0.7	3.6	0.4	1.0	1.0	5.8	2.1	12.6	4.4
TOTAL HUMAN SPACE FLIGHT	2001	7,153.5	4,086.5	699.0	1,602.9	83.0	80.9	36.9	19.4	125.3	183.9	88.1
	2002	6,830.1	3,933.8	797.8	1,349.6	89.6	14.3	22.1	13.8	42.2	198.0	183.3
	2003	6,130.9	3,394.7	664.5	1,207.0	91.2	7.2	10.1	14.3	46.5	69.0	611.2

*FY 2001 restructured to reflect new FY 2002 Two Appropriation Structure

**Full funding for Federal Retiree Cost are not included (see Special Issues)

Note: totals may not add due to rounding